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# Richmond 6g40-36f1 parts diagram

**Richmond 6g40s-34f3 parts. Richmond 6g40-36f3 parts. Richmond 6g40-36f1 specs. Richmond 6g40-36f1 parts. Richmond 6g40-36f3 parts diagram.**

This manual is a must-read for the installer and owner-operator alike. It provides essential guidance on installing and maintaining the residential gas water heater safely. First and foremost, it's crucial to note that this water heater is not suitable for manufactured homes. Always follow these basic safety precautions: * Be aware of the potential risks associated with using the wrong water temperature setting. * If you're unsure about the smell of LP or natural gas, ask your supplier for guidance. * Never ignore the warnings and cautions outlined in this manual. Your safety is paramount, so take the time to read through this comprehensive guide carefully. By doing so, you'll be better equipped to minimize risks, prevent property damage, and ensure a safe working environment. ###SAFETY PRECAUTIONS TO REMEMBER: * Always follow California Law regarding bracing, anchoring, or strapping water heaters. * Install the heater at least 12 inches away from any ignition source. * Never attempt to service or repair the water heater yourself; always hire a qualified professional. 1. Water heaters should be installed according to specific codes and standards, including local regulations and utility requirements. 2. Before installation, inspect the shipment for damage and verify that the correct type of gas is supplied. 3. Ensure proper combustion and ventilation air by complying with referenced codes and standards. 4. Check for a check valve in the inlet water line to prevent a "closed water system" or an "open" water system. 5. Install a new combination temperature and pressure relief valve, as specified in ANSI Z21.22, and maintain it according to local codes. 6. Use approved gas piping material and install a ground joint union or ANSI design certified semi-rigid or flexible gas appliance connector. 7. Install the draft hood provided by the manufacturer and properly vent the water heater outdoors. Installing Hot and Cold Pipe Insulation is crucial for safe operation of the water heater, preventing bodily harm, explosion, fire, or death. For increased energy efficiency, install insulation according to the typical vertical or horizontal piping arrangement illustrations provided. Before installation, ensure the following: * Water Heater Location: Indoors, protected from freezing, with proper clearance from combustible surfaces and sufficient fresh air supply. * Provisions made to protect area from water damage and corrosion-free air supply. * Sufficient room for servicing the heater. When operating the gas water heater in potable/space heating applications, follow local codes or plumbing authority requirements, which may supersede instructions provided. Read and follow all labels on the water heater, including warnings printed in this manual. To operate the water heater safely: * Before using the hot water system after an extended period of non-use (generally two weeks or more), open the kitchen sink faucet for several minutes to dissipate hydrogen gas and reduce risk of injury. * Set the water temperature wisely, as maximum temperatures occur just after the burner shuts off. Always test the water temperature with your hand before use. Remember: Hotter water increases the risk of scalding injury. The temperature dial's rim represents a water temperature of approximately 120°F (49°C). For care and cleaning, start by shutting off gas to the water heater before draining the water. Be cautious when operating the temperature and pressure relief valve, as it may release hot water that can cause scalding. Direct the drained water to a suitable drain to prevent injury or damage. Inspect the venting system annually by removing the draft hood and flue baffle. Securely reinstall the flue baffle and draft hood, then inspect the gas venting system and chimney. Before calling for service, review troubleshooting charts to potentially resolve issues yourself. This water heater features a combustion shut-off device that stops operation if undesirable conditions occur. If this happens, contact a qualified technician. Common problems include rumbling noises due to scale or sediment buildup, relief valve popping or draining due to pressure buildup, or insufficient hot water due to excessive usage. To order replacement parts for 30-60 gallon models using natural or LP gas, provide the model and serial number from the rating plate and specify the type of gas. Never attempt repairs to safety devices; instead, refer them to qualified professionals. To find alternative service assistance, refer to phone directories, commercial listings, or local utilities for qualified help. Installing the water heater should follow these instructions, local codes, and utility company requirements. If no local codes exist, use the latest American National Standard/National Fuel Gas Code edition. This standard can be purchased from organizations like the American Gas Association or the National Fire Protection Association. The water heater's location is crucial; it should not be placed in areas where potential leaks could cause damage to surrounding structures or lower floors. If this cannot be avoided, a suitable catch pan must be installed under the water heater. However, this pan must allow for air flow into the combustion air inlet openings located around its lower perimeter. Ensure that the floor supporting the water heater is strong enough to hold its weight once filled with water. The installation of a gas-fired water heater or any appliance should not occur in spaces where liquids giving off flammable vapors are used or stored. This includes gasoline, paint, adhesives, solvents, and removers. When installed in a closet, do not block the combustion air inlet openings; there must be at least 1 inch of clearance between these openings and any obstructions. Due to natural air movement in rooms, flammable vapors can travel far from where they are used or stored, risking ignition by the water heater's pilot or main burner. Place the water heater so it is not susceptible to physical damage, such as moving vehicles or area flooding. If local codes require a stand kit to raise the water heater 18 inches above the floor, contact the store where the water heater was purchased or any water heater distributor for more information. ● Water heaters should be installed near gas vents or chimneys to improve safety. ● Insulating long hot water lines helps conserve energy and water. ● Protecting water heaters from freezing temperatures is crucial for their operation. ● Never install water heaters in bathrooms, bedrooms, or outdoors without proper protection. ● Ensure the water heater has sufficient clearance from combustible materials as per the manufacturer's instructions. ● When installing a water heater in an alcove or closet, cover the floor with wood or metal to prevent damage. ● Maintain at least 24” of clear space around the water heater for easy inspection and maintenance. ● Water heaters can be installed on carpeted floors but require additional protection. The pressure in a water heater and system piping can surge rapidly, triggering the relief valve. This can cause it to activate with each heating cycle, leading to premature failure. The issue stems from thermal expansion, which causes repeated expansion and contraction of components. A simple fix is installing an expansion tank between the water heater and check valve. This device compresses as pressure increases, relieving stress on the system. Other methods exist for controlling thermal expansion. Consult your installer, water supplier, or plumbing inspector for more information. A typical installation involves marking the hot and cold water connections (3/4" NPT) and installing unions or flexible copper connectors. A shut-off valve should be installed in the cold water line near the heater. Important: Avoid applying heat to the water connections, as this can damage the dip tube. For sweat connections, apply heat to the tubing before attaching it to the adapter. The National Fuel Gas Code requires a manual gas shut-off valve. Local codes may vary and take precedence over these instructions. If required, install a vacuum relief valve per local codes and manufacturer's instructions. Proper water heater operation demands adequate combustion and ventilation air. When installing the water heater in a closet, avoid obstructing its perimeter combustion air inlet openings. A minimum 1-inch gap is required between these openings and any obstructions. If the water heater is placed in an unconfined space within a conventional building, infiltration air usually suffices for proper combustion and ventilation. However, if it's installed in a confined space, provisions must be made to ensure adequate airflow. A confined space is defined as one with less than 50 cubic feet of volume per 1000 Btuh of appliance input. For such spaces, two permanent openings are required. One should be positioned within 12 inches above the floor, and the other within 12 inches from the ceiling. The minimum net free area for each opening is set at one square inch per 1000 Btuh of total appliance input, with a minimum of 100 square inches if the openings communicate with unconfined areas inside the building. In unusually tight constructions, air must be supplied from outdoors or a freely ventilated attic or crawl space. If this air comes directly or through vertical ducts, two specified openings are required for each opening to have a net free area not less than one square inch per 4000 Btuh of total appliance input in the enclosure. For horizontal ducts communicating with the outdoors, each opening must have a minimum net free area of not less than one square inch per 2000 Btuh of total appliance input. Duct openings must be at least 3 inches in minimum dimensions if used. When supplying combustion and ventilation air through ducts that will be covered with protective screens or grills, the net free area of these coverings should be considered for determining opening sizes. It's crucial to note that any covering material for such openings cannot be smaller than a quarter-inch mesh to prevent clogging by lint or other debris. When dealing with halogenated hydrocarbons in air supplies, it's crucial to note that even if they appear safe, passing them through a gas flame can release corrosive elements that shorten the lifespan of gas-burning appliances. Similarly, propellants from common spray cans or gas leaks from A/C and refrigeration equipment become highly corrosive when passed through a flame. A key takeaway is that water heaters should not be installed near air supplies containing halogenated hydrocarbons. Instead, inspect shipments for possible damage and check the markings on the rating plate to ensure the type of gas supplied matches the heater's requirements. Upon installation, it's essential to supply and install a new combination temperature and pressure relief valve complying with ANSI Z21.22 standards. This valve must remain in the provided opening and not be installed between any other valves or restrictions. Local codes will govern the installation of these valves. When positioning the outlet of the relief valve, ensure it's above an open drain to prevent water damage. Use approved piping for hot water distribution, and the discharge line should pitch downward from the valve to facilitate complete drainage by gravity. The end of the discharge line should be protected from freezing and not have any restrictions or reducers. To fill the water heater, first close the drain valve, then open the shut-off valve in the cold water supply line. Next, open each hot water faucet slowly to vent air from the water heater and piping. A steady flow of water indicates a full tank. It's vital to note that the tank must be full before the heater is turned on, as operating with an empty or partially empty tank voids the warranty. Finally, condensation may form on the tank when first filled with water, and it can also occur in certain situations, so it's crucial to address these potential issues during installation and use. Important Installation and Operating Instructions: When drawing cold water into your water heater, you may notice a sizzling or pinging sound due to condensation. This is normal and will resolve once the water heats up. However, if condensation persists, inspect piping and fittings for potential leaks. For more information on this topic, visit www.rheem.com and navigate to the Technical Service Bulletins 1400 Series Section, choosing Bulletin #1402. Important Safety Note: Do not attempt to modify your water heater for use with a different type of gas than specified on the rating plate. Such conversions can lead to hazardous operating conditions. Pre-Operation Testing: Before placing the water heater in operation, perform leak tests at normal operating pressures. Turn on the manual gas shut-off valve and inspect all connections and fittings using a soapy water solution. Bubbles indicate a gas leak that must be corrected. High Altitude Use: This water heater is suitable for use at high altitude. Refer to the altitude label for maximum allowable installation height. Note: Installations above this rated altitude may result in improper operation, producing excessive carbon monoxide, which can cause serious injury or death. Pressure Testing and Isolation: During pressure testing of the gas supply system, disconnect the water heater from the piping system at pressures exceeding 3/8 psi (10.5” w.c.) for natural gas or 1/2 psi (14” w.c.) for LP gas. The water heater must be isolated by closing the manual gas shut-off valve during testing. Gas Supply Line: The branch gas supply line to your water heater should consist of clean 1/2” black steel pipe or approved gas piping material. Install a ground joint union or ANSI design certified semi-rigid or flexible connector near the water heater, as mandated by the National Fuel Gas Code (NFGC). If using flexible connectors, ensure maximum length does not exceed 36”. Lever-type shut-offs must be T-Handle. When installing a gas-powered water heater, ensure that the threaded joints on the gas piping are resistant to LP gas. Use thread compounds sparingly only on male threads. A sediment trap should be installed at the bottom of the gas line. When tightening pipe joints, avoid excessive force (over 31.5 ft-lbs), particularly when using Teflon pipe compound, as this may damage the valve body. The inlet gas pressure to the water heater must not exceed 10.5” w.c. for natural gas or 14” w.c. for LP gas. The minimum inlet gas pressure (with main burner on) is specified on the water heater's rating plate. If high or low gas pressures are present, contact your gas supplier for correction. A crucial warning: never use an open flame to test for gas leaks, as this may result in property damage, personal injury, or death. manufacturer warns against using unauthorized devices, stating that they are not responsible for any resulting damage or injury from their use.CAUTION: If local regulations require an external insulation blanket for this water heater, it's essential to follow these guidelines to avoid compromising its proper function:● Do not cover the operating labels or warning signs on the water heater. Also, refrain from relocating them to the outside of the insulation blanket.z Avoid applying insulation to the top of the water heater, as this could interfere with the safe operation of the draft hood.z Never cover the burner access door, jacket door, gas control/thermostat, or pressure and temperature relief valve.z Do not apply insulation to the bottom of the water heater or areas where combustion air inlet openings are located. This must remain unobstructed to prevent restricted airflow to the burner.z Regularly inspect the insulation blanket to ensure it hasn’t sagged and is allowing proper airflow through the combustion air inlet openings (perforation holes) around the lower perimeter of the water heater jacket. Failure to do so could result in an unsafe operating condition.DANGER: Failing to install a draft hood and properly vent the water heater, as outlined in the Venting section of this manual, will lead to its unsafe operation, potentially causing bodily injury, explosion, fire, or death.To avoid risks like fire, explosion, or carbon monoxide poisoning from asphyxiation, NEVER operate the water heater unless it's been properly vented and has adequate air supply for proper operation as specified in the Venting section of this manual.WARNING: If local codes require external insulation blanket kits, carefully follow the manufacturer’s instructions included with the kit.Page 813For increased energy efficiency, some water heaters come equipped with two 24” sections of pipe insulation. Please install the recommended insulation according to the provided illustrations.DO❑ Check inlet gas pressure to ensure it falls within the range specified on the rating plate.❑ Provide adequate air for combustion and ventilation as discussed in the Use and Care Manual and National Fuel Gas Code.❑ Maintain proper clearances to combustibles as specified on the rating plate.❑ Ensure that the venting system complies with guidelines found in the Use and Care Manual and National Fuel Gas Code.❑ If the pilot or main burner won’t stay lit, contact a qualified service technician for assistance. The burner chamber is designed to be sealed using a gasket and tamper-evident feature. DON’T restrict or block the air intakes around the lower part of the water heater jacket. Also, only a qualified technician should remove the burner access door, and it needs to be resealed when taken off. The base of the water heater must be on a dry surface to avoid standing water issues. Operating the water heater with damaged sight glass or burner access door grommet is not allowed. Some water heaters come with heat traps for increased efficiency. These might need specific elbow or coupling configurations, and details can be found in the provided illustration. Important installation points include: - Clearing space around vents and protecting them from freezing temperatures. - Ensuring proper clearance from combustible materials and avoiding carpeted floors. - Providing sufficient fresh air supply and ensuring it's free of corrosive elements and flammable vapors. - Protecting the area from water damage and providing enough room for servicing the heater. - Keeping the base clear of combustible items like clothing, cleaning supplies, or rags. - Ensuring proper clearance around combustion air inlet openings. - Filling the water heater completely with water, purging air from it and its piping, and checking connections and fittings for leaks with soap and water solution. - Having a gas company inspect the installation if required, ensuring the temperature and pressure relief valve is correctly installed, and protecting its discharge line from freezing. Tee fittings are necessary for both vertical and horizontal hot water supply lines. The hot water supply connects from the water heater's HOT outlet to the house and heating unit. For combination potable and space heating applications, local codes or plumbing authority requirements take precedence over these instructions. When installing a gas water heater in this type of application, it is crucial to purge any air in the water lines through domestic water faucets and showers. A mixing or tempering valve must be installed in the hot water supply line to reduce the scald hazard potential when the system requires water for space heating at elevated temperatures. All piping components used in this installation must be suitable for use with drinking water, as any contamination could pose health risks. Toxic chemicals from boiler treatment should never be introduced into the system. The typical piping diagram for combination potable and space heating installations includes a spring-loaded check valve in both the hot water supply line and cold water return line. All water piping should be insulated according to local and state energy codes. An isolation valve is required in the cold water return line from the heating unit, and a nominal 3/4" size mixing or tempering valve must be installed with proper manufacturer's instructions followed. The temperature and pressure relief valve discharge line connects to an air handler, while a drain valve is necessary for hot water supply to space heaters. Proper installation of a gas-fired water heater requires attention to detail and compliance with local and state codes. Key components include: * Isolation valves for the hot water supply line to the heating unit * A 3/4" cold water supply and tempered domestic hot water supply to the house * A gas line to the water heater, along with a combustion air inlet opening and a 2-gallon thermal expansion tank (if required) * An air vent, heat trap, and 6" minimum pipe size for the water heater's connection to the fan coil The piping loop between the water heater and fan coil should be made of flow-guard gold CPVC or equal. The water heater itself is equipped with an all-bronze pump, check valve, air bleed valve, water sample tap, and electronically controlled pump timer. To ensure safe operation, follow the manufacturer's instructions for lighting the water heater and take note of the warning labels on the device. Failure to do so can result in property damage, personal injury, or even loss of life. The table provided by the Shriners Burn Institute highlights the time-temperature relationship in scalds, emphasizing the importance of proper water temperature control. Additional safety precautions include turning off the manual gas shut-off valve if the water heater has been subjected to overheating, fire, flood, physical damage, or loss of gas supply. The water heater should not be turned on unless it is completely filled with water, and the cold water supply shut-off valve should remain open. Important Safety Precautions When Using Your Water Heater: • Always store flammable materials, such as adhesives or paint thinner, away from your water heater and other appliances. If you must use these materials near the water heater, ensure good ventilation by opening doors and windows. Shut off any gas burning appliances in the area to prevent vapors from igniting. #### Caution: Hydrogen Gas Formation When a water heater is not used for an extended period (usually two weeks or more), hydrogen gas can form within the hot water system. This gas is extremely flammable, so it's crucial to dissipate it before using any electrical appliances connected to the hot water system. To do this, open the hot water faucet at your kitchen sink and let the water flow for several minutes. Be aware that if hydrogen gas is present, you may hear unusual sounds like air escaping from the pipes as the water begins to flow. Avoid smoking or using an open flame near the faucet during this process. #### Warning: Hot Water Scalds Hotter water increases the risk of hot water scalds. Households with small children, disabled, or elderly persons may require a lower gas control setting (120°F or less) to prevent contact with hot water. #### Regulating Water Temperature The temperature of your water heater can be adjusted by setting the dial on the front of the gas control (thermostat). When selecting a water temperature setting, consider both safety and energy conservation. A lower temperature setting will result in greater energy savings. The recommended starting point temperature is 120°F. #### Important Safety Reminders Be sure to read and follow the warnings outlined in this manual and on the label located near the gas control thermostat on your water heater. Water temperatures above 125°F can cause severe burns or death from scalding. #### Mixing Valves for Reduced Water Temperature If you need to reduce the point-of-use water temperature, mixing valves are available to mix hot and cold water in branch water lines. Consult a licensed plumber or local plumbing authority for further information (see page 4). #### Chart: Determining Proper Water Temperature Use this chart as a guide to determine the proper water temperature setting: [Insert chart here] 1. The ideal water temperature setting is around 120°F (49°C), but it can vary depending on the situation. 2. To check the current water temperature, turn on a hot faucet and insert a thermometer into the stream. 3. The reference mark S on the dial indicates an approximate water temperature of 120°F (49°C), while A represents 130°F (54°C). 4. For every 10°F (5.5°C) change above or below these points, refer to the marked line for the new temperature setting. 5. When adjusting the temperature, start with a setting of 120°F (49°C) and ensure proper operation. 6. Stacking can occur when taking multiple hot water draws, causing the top layer to be hotter than the bottom layer. 7. Always test the water temperature with your hand before use and supervise children or incapacitated individuals due to scalding risks. 8. The gas control (thermostat) has a built-in safety shut-off device that will turn off the gas supply if the pilot flame is extinguished. 9. In case of overheating, turn off the manual gas control valve immediately. 10. If the water heater has been damaged, check it by qualified personnel before operating again. To drain your water heater, first shut off the cold water supply. Next, open a hot water faucet or lift the relief valve handle to let air into the tank. Attach a garden hose to the drain valve and direct it towards a drain. Then, open the valve. When inspecting the pilot burner, make sure it's lit if necessary. Ensure proper ventilation and combustion airflow by maintaining clearance around the water heater. If installed in a closet, avoid blocking or obstructing combustion air inlet openings. Regular maintenance is key to your water heater's longevity. Have a qualified service person inspect the gas control, burner, relief valve, internal flue-way, and venting system annually. Establish a routine maintenance program to ensure trouble-free operation. Once a year, lift and release the temperature pressure relief valve handle to test its function. Allow several gallons of water to flow through the discharge line into an open drain. If your temperature and pressure relief valve discharges periodically, it may be due to thermal expansion in a closed water system. Contact your water supplier or plumber for guidance. Over time, mineral deposits can accumulate at the bottom of the tank, affecting gas control sensors. Regularly draining 2-3 quarts of water from the tank each month can help prevent this issue. Rapid faucet closures can cause banging noises in pipes. Strategically located risers or water hammer arresting devices can minimize this problem. Finally, remove and inspect your anode rod annually, replacing it when more than 6 inches of core wire has corroded. The manual highlights essential safety precautions and maintenance guidelines for a water heater. It's crucial to ensure the cold water supply is turned off before removing anode rod, found at either end of the rod. Additionally, there's a built-in combustion shut-off device that stops the water heater if it detects undesirable combustion conditions, such as flammable vapors or blocked air intake openings. If this occurs, it's recommended to contact a qualified service technician immediately. Safety warnings include avoiding exposure to hot water released by the relief valve and not placing combustible materials next to the water heater, as this can lead to carbon monoxide dangers and other hazardous conditions. Proper maintenance is also emphasized to prevent excessive hot water temperatures and potential injuries. The troubleshooting guide on pages that follow provides a chart to help users identify problems and their possible causes. It covers common issues like condensation, moisture buildup, undersized heaters, yellow flames, scale buildup, flue or combustion air inlet blockages, and insufficient ventilation. Users are advised to check the water heater size, remove obstructions, or contact a qualified service technician for assistance. Unable to light pilot? Check the gas line for air and contact a professional. Pilot issues? Clean or replace it with a pro's help. Gas control knob not depressed while trying to light? Follow the "Lighting The Water Heater" section in your manual. Pilot doesn't stay lit? Loose thermocouple might be the culprit. Have a pro check the gas control connection. Thermocouple defective? Time for a replacement, courtesy of a qualified service technician. Safety magnet not working? It's time to swap out the gas control (thermostat) with a new one, installed by an expert. Gas Controls (Thermostat’s) single use gas shut-off device has opened? Call a pro to replace it. Combustion Shutoff Device tripped? Have a professional inspect and fix it. **CAUTION: Don't attempt any repairs yourself.** Annual Flue Inspection: Every year, remove the draft hood and flue baffle for a thorough clean. Reinstall them securely, and make sure the vent connector is properly attached. Vent System Check-Up: Inspect the gas venting system and chimney regularly. If you spot soot or deterioration, call the local gas utility to correct the issue before resuming water heater operation. **CAUTION: Cleaning of burners must be performed by a qualified service technician.** Burner Inspection: Check the pilot burner and main burners annually through the sight glass. If anything unusual is noted during inspection, shut off the water heater until a professional can assist. If the burner access door is removed, it's essential to replace the gasket. For cleaning, take out the burner and use a vacuum cleaner on the burner and floor shield inside the water heater. You can also clean the burner by gently scrubbing with mild detergent. Ensure proper burner and pilot burner pattern. For maintenance, follow these steps: remove power and water from the appliance if it's going to be idle for an extended period. Drain the water heater and piping if they might be exposed to freezing temperatures after a long shut-down. Before restarting, ensure the water heater is completely filled and its operation and controls are checked by qualified personnel. Note: Refer to the Hydrogen Gas Caution in the Operating Instructions. This water heater features an anode rod designed to prolong the life of the glass-lined tank. However, if you experience a rotten egg odor due to sulfate and/or mineral content, consider chlorinating your water supply. Do not remove the anode rod except for inspection or replacement, as operating without it will significantly shorten the lifespan of the tank and void warranty coverage. Water Heater Malfunction The water temperature setting is too high, causing The gas control (thermostat) to malfunction . This can lead to issues with the Pilot Burner not staying lit or the Main Burner not functioning correctly. To resolve this, contact a qualified service technician to replace the defective gas control (thermostat). Before seeking assistance, ensure you have the correct information: * Model and serial number of the water heater from the rating plate * Type of gas used (natural or LP) * Description of the part needed For any questions about your new water heater or required service, it's recommended to contact your installer or a plumbing contractor. If they're unavailable, refer to local listings for qualified service assistance. If your issue remains unresolved, contact the Manufacturer's National Service Department at: 2600 Gunter Park Drive East Montgomery, Alabama 36109-1413 Phone: 1-800-432-8373 Please have ready: * Model and serial number of the water heater * Address where the water heater is located * Name and address of the installer and any service agencies involved Please refer to our website (www.rheem.com) for Spanish manual. If you need help with your water heater problem, please provide the following information: - Date of original installation - Dates and details of any service work performed - Description of the problems you've experienced - List of people contacted regarding the issue Also, note that this water heater is not suitable for manufactured homes. **Important Safety Information** Read all instructions before using. Understand the entire manual before installing or operating the water heater to avoid potential dangers and costly repairs. Failure to follow safety guidelines can result in serious injury or death. Be cautious with water temperature settings above 125°F, as they can cause severe burns or scalding. Additionally, LP gas models have an added odorant to detect leaks. If you're unsure about the smell or experience "odorant fade," consult your gas supplier for guidance on potential gas leaks. For your records, please note the model and serial numbers of your water heater (located on a label) and staple proof of purchase here. Remember, proper installation and maintenance are key to safe operation. **Important Safety Notice**: Failing to follow instructions and guidelines may result in fire, explosion, electrical shock, property damage, personal injury, or loss of life. For California installations, residential water heaters must be secured to prevent earthquake-related displacement. **Installation Requirements**: 1. Follow the manufacturer's instructions, local codes, utility company requirements, and American National Standard/National Fuel Gas Code. 2. Inspect the shipment for damage and ensure the rating plate indicates compatibility with the supplied gas type. 3. Verify combustion and ventilation air compliance with referenced codes and standards. **Thermal Expansion Considerations**: Check if a check valve exists in the inlet water line, as it may affect system operation. A "closed" water system can occur when a check valve is present, while an "open" system lacks one. **Temperature and Pressure Relief Valve Installation**: A new combination temperature and pressure relief valve must remain in the provided opening on the water heater. No valves should be installed between this relief valve and the tank. Local codes govern relief valve installation. **Important Warning**: Do not attempt to convert this water heater for use with a different gas type than shown on the rating plate, as this may result in hazardous operating conditions. **Gas Supply Line Requirements**: Use clean 1/2” black steel pipe or approved gas piping material for the branch gas supply line. The gas line near the water heater should have a flexible gas appliance connector installed. Installing the Water Heater The water heater must be set up with its factory-supplied blower assembly in place. The Blower Assembly Installation 1. Connect the electrical part of the blower. 2. Attach it to the top pan using six screws (See diagram). **DO NOT** overtighten screws as this can cause the plastic to crack. Install the rubber coupling on the blower housing and secure it. Vent Pipe Materials This unit should only use specific pipe materials for ventilation: - 2-inch PVC Schedule 40, ASTM D1785 - 3-inch PVC or Cellular Core PVC Schedule 40, ASTM F891 - CPVC (Schedule 40) of 2 or 3 inches in diameter. **DO NOT** mix ABS pipe with PVC fittings. Condensate Management and Vent Risers In most conditions, Rheem water heaters do not require condensate collection. If the vent run is short or through conditioned space, it does not typically cause condensation. The maximum and minimum vent lengths for residential 40 & 50 Gallon Power Vents are: - Minimum: one foot of vertical pipe, one elbow (90 degrees), and three feet of horizontal pipe. - Maximum: varies depending on the length. Maximum Venting information for 2” Vents: - For distances up to 2,000 feet, no additional restrictions apply. - Beyond 2,001 feet, specific limitations must be followed. Additional Venting Requirements If less than one foot of vertical pipe is used before the first elbow, subtract six feet from the maximum vent length. The vent restrictor should only be installed at the minimum lengths for specified model numbers. Once you've chosen a location for your water heater vent terminal, make sure it's away from any prevailing winter winds. Next, install the vent pipe by drilling a hole through the roof and interior ceiling to connect it to the vent connector fitting on the blower outlet. Make sure to support any vertical or horizontal lengths of the pipe as needed. Also, don't forget to install flashing where the pipe passes through the roof. When it comes to installing the water heater itself, follow local codes regarding electric service connections. If permitted, you can connect the power cord provided with a grounding receptacle. Otherwise, you'll need to connect a 120 V, 50/60 Hz power supply with suitable disconnecting means to the black and white leads in the heater control enclosure. When servicing controls, always label wires before disconnection to avoid wiring errors that can cause improper or dangerous operation. For gas water heaters, external insulation blankets are not necessary. However, if local codes require them, make sure to follow the manufacturer's instructions for application. If your water heater comes with an electronic display option, be aware that it cannot be added to a model without this feature from the factory. When installing this display, avoid over-tightening the plastic enclosure and use the mounting holes provided with the transformer components. After 2 seconds of initial startup, a software revision will appear for another 2 seconds (see Diagram B). **CAUTION: Risk of Scalding Increases with Hotter Water**. The user display temperature setting cannot exceed the maximum water heater valve setpoint at any time. A Max Setting icon appears when the user-set temperature exceeds the gas valve knob setpoint. The water heater's gas valve knob is currently set to HOT, displaying "Hot" as the maximum available setpoint. The user has chosen this setting for their hot water needs. An estimated three-bar display on the user interface indicates the relative availability of hot water based on the set temperature. The chart below explains each symbol: **Est. Hot Water** * Three bars: Tank is full of hot water * Two bars: Two-thirds tank volume available * One bar: One-third tank volume available * No bars: No hot water available The user display also features a vacation mode that sets the temperature to Low. For increased energy efficiency, some water heaters come with factory-installed heat traps in the hot outlet line and cold water inlet line. These may require additional elbows or couplings for installation (see page 41). During installation, please ensure: 1. The water heater is located near a vent. 2. It's indoors, protected from freezing temperatures. 3. Proper clearance from combustible surfaces is maintained. 4. There's sufficient fresh air supply for proper operation. 5. The area is protected from water damage. This manual provides supplemental instructions for gas water heaters in potable water/space heating applications. Local codes or plumbing authority requirements may supersede these instructions and diagrams. To light the water heater, please read and follow the instructions on the label pictured below and all other labels on the unit. Important Precautions: Before using your water heater, carefully read this manual and follow all instructions and warnings. Failure to do so can result in serious consequences, including property damage, personal injury, or even death. If you encounter any difficulties reading or following the instructions, STOP and seek help from a qualified person. Hydrogen Gas Warning: When not used for an extended period (usually over two weeks), hydrogen gas may be produced in your water heater. This gas is EXTREMELY FLAMMABLE! To dissipate this gas and minimize risk of injury, open the hot water faucet at the kitchen sink for several minutes before using any electrical appliances connected to the hot water system. Water Temperature Setting: To determine a safe working temperature, turn on a hot water faucet and place a thermometer in the water stream. Maximum temperatures occur just after the burner has shut off. Operating Sequence: During initial start-up or when calling for heat, the control verifies the vacuum switch is open. The flammable vapor sensor continuously monitors the electronic control in all modes of operation. Care and Cleaning: Before draining the water heater, ensure you have turned off the gas supply at the thermostat, gas cock, or manual shut-off valve. When manually operating the temperature and pressure relief valve, make sure no one is exposed to the hot water released by the valve. Important Safety Considerations: * Do not place combustible materials near the water heater. * Visually inspect the pilot and ensure sufficient ventilation and combustion air supply. * Avoid obstructing or blocking the Flammable Vapor Sensor. It does not require maintenance or cleaning, but exposure to cleaning agents is also undesirable. Vacation and Extended Shut-Down: If your water heater will remain idle for an extended period, refer to the Hydrogen Gas Caution in the Operating Instructions. Before performing any maintenance or repairs on your water heater, make sure to turn off the power and water supply. This will help conserve energy and prevent a buildup of dangerous gases. If you live in an area where freezing temperatures are common, consider draining the water heater and piping to avoid damage. If you're experiencing issues with your water heater, try troubleshooting before calling for service. Check the charts on the following pages to see if the problem can be solved without assistance. This water heater has a built-in shut-off device that will stop operation if it detects any unusual combustion conditions. In case of an issue, look for LED codes on the gas valve, which may indicate the source of the problem. If you're unsure what to do, contact a qualified technician for help. If you need replacement parts, refer to the instructions on page 44 and make sure to include the model and serial number of your water heater, as well as the type of gas it uses (natural or LP). A copy of the latest American National Standard/National Fuel Gas Code can be bought from either the American Gas Association or the National Fire Protection Association. The code is also known as ANSI standard Z223.1 or NFPA 54 booklet. It's crucial to locate the water heater in an area where it won't leak onto adjacent floors, especially when such areas can't be avoided, a suitable catch pan must be installed. This catch pan should allow for air flow around the combustion inlet openings located near the lower perimeter of the heater. Catch pan kits are available from retailers or distributors. Make sure the floor under the water heater is strong enough to hold its weight once filled with water. Avoid installing gas-fired heaters in areas where flammable vapors are used, like gasoline, paint, or solvents. Don't block any combustion air inlet openings; a minimum of 1” space is required between them and any obstructions. FVIR certified gas water heaters can be installed on garage floors without an 18" stand if permitted by state and local codes. Ensure the heater isn't in harm's way from physical damage, like moving vehicles or flooding. It's also suggested to install it where ambient temperatures don't exceed 100°F (38°C). Most importantly, do not place it where temperatures could reach over 125°F. When installing a water heater, minimize plastic vent pipe length and connections for easier setup (see "INSTALLATION" section). Insulate long hot water lines to save energy and water. Protect the water heater and lines from freezing temperatures. Avoid installing the water heater in bathrooms, bedrooms, or other occupied rooms that are usually closed off or outdoors without proper protection. Ensure at least 24 inches of clearance around the front and top for easy inspection and maintenance. If installed in an alcove or closet, cover the entire floor with a wood or metal panel to ensure adequate space for servicing. You can install the water heater on combustible floors, but not directly on carpeting; instead, place a metal or wood panel beneath it, extending at least 3 inches in all directions. Comply with local codes for auxiliary catch pan installation. Ensure the water heater's diameter plus 2 inches is minimized to prevent excessive thermal expansion. The maximum allowed is 2.75 inches. Important: Combustible construction refers to adjacent walls and ceilings, not flammable products or materials. Never store flammable materials near this or any gas appliance. For proper flammable vapor sensor function, ensure it's not submerged in water; check the catch pan for proper drainage. Don't allow the catch pan to obstruct the sensor. Additionally, determine if a check valve exists in the inlet water line and consult with your local water utility company. A check valve can create a "closed" water system, which may require specific setup considerations. Thermal expansion in water heaters can cause pressure increases, which may lead to premature failure of components. To prevent this issue, a "closed water system" is crucial. This involves installing an expansion tank between the water heater and check valve, filled with air that compresses as pressure rises, relieving the excess pressure. Other methods for controlling thermal expansion exist, and it's recommended to consult a professional (installer, supplier, or inspector) for more information. The illustration below provides guidance on typical installation. Key steps include: 1. Install unions or flexible connectors on hot and cold water connections for easy disconnection during servicing. 2. Mark the hot and cold water connections as 3/4" NPT. 3. Add a shut-off valve in the cold water line near the water heater. 4. Avoid applying heat to the water connections, as this can damage components. The National Fuel Gas Code requires a manual gas shut-off valve, and local codes may supersede provided instructions. Heat trap and anode requirements also apply. Proper Installation Requirements ------------------------------ Combustion Air and Ventilation * Ensure unobstructed combustion air inlet openings around the perimeter of the water heater with a minimum clearance of 1” from any obstruction. * In an unconfined space, infiltration air is sufficient for proper combustion. For confined spaces, two permanent openings are required: one within 12” above the floor and another within 12” from the ceiling. Flammable Vapor Sensor * Do not obstruct or block the Flammable Vapor Sensor. Combustion and Ventilation Air Provisions * If installed in a building of conventional frame, masonry, or metal construction, infiltration air is adequate. * For confined spaces with less than 50 cubic feet per 1000 Btuh, two permanent openings are required. One opening must be within 12” above the floor and another within 12” from the ceiling. The minimum net free area of each opening is one square inch per 1000 Btuh. * For unusually tight construction buildings, air must be supplied from outdoors or a freely ventilated attic or crawl space. Duct Requirements * If ducts are used to communicate with the outdoors: + Two openings are required, each with a minimum net free area of one square inch per 4000 Btuh. + The minimum dimensions of rectangular air ducts must not be less than 3”. Protective Screening * When using protective screens or grills, calculate the size based on the net free area (openings in the material) rather than the physical opening. The water heater should not be installed in areas with corrosive atmospheres, such as those containing halogenated hydrocarbons. Such environments can damage the appliance and void its warranty. Before installation, inspect the unit for any damage and ensure it is compatible with the gas supply type indicated on the rating plate. A new combination temperature and pressure relief valve must be installed and maintained according to local codes and ANSI standards. **Water Heater Safety Precautions** **Full Tank Required**: Before turning on the heater, ensure the tank is fully filled with water. Operating an empty or partially empty tank can void the warranty. **Condensation**: When filling the tank, condensation may form due to temperature differences. This is normal and will disappear as the water heats up. However, if condensation persists, inspect pipes and fittings for leaks. **Conversion Warning**: Do not attempt to convert this heater for use with a different gas type than specified on the rating plate. This could lead to hazardous operating conditions. **Leak Testing**: Before operation, perform leak tests on the water heater and gas connections using soapy water. Bubbles indicate a gas leak that must be corrected. **High Altitude Installation**: The water heater is designed for sea-level operation. At higher elevations, the actual input rate may be lower due to gas derating. Install at elevations up to those listed on the rating plate without modification. **Pressure Testing**: Isolate the appliance from the gas supply system during pressure testing above 1/2 psi (3.5 kPa). For pressures equal to or less than 1/2 psi, close the individual manual shutoff valve. **Gas Supply Line**: Use clean 1/2” black steel pipe or approved materials for the branch gas supply line. Install a ground joint union or semi-rigid/flexible connector near the water heater. **Manual Gas Shut-Off Valve**: Ensure a manual gas shut-off valve is installed according to the National Fuel Gas Code (NFGC) instructions. Gas Appliance Installation Requirements: - Maximum length: 36" (ANSI Z21.24-compliant). - Lever-type gas shut-offs: T-Handle type only. - Gas piping compound: LP gas-resistant, used sparingly on male threads only. - Sediment trap installation: either a tee fitting with a capped nipple or an equivalent device downstream of the equipment shutoff valve, as close to the appliance inlet as practical. - Do not apply excessive force (31.5 ft lbs.) when tightening pipe joints at the gas control inlet, particularly if Teflon compound is used, to avoid damaging the valve body. - Inlet gas pressure: 10.5" w.c. for natural gas and 14" w.c. for LP gas; refer to the water heater rating plate for minimum inlet gas pressure (with main burner on). - Avoid using an open flame to test for gas leaks, as it may result in property damage, personal injury, or death. - Ensure proper installation of a water heater suitable for its intended altitude location to prevent improper operation and potential carbon monoxide production. - The water heater must be installed with the factory-supplied blower assembly in place. - Venting: - Connect this water heater to a separate vent system (do not connect to an existing one). - Vents may run horizontally through a wall or vertically through the roof, but should be supported along their length, with no more than 6 feet of unsupported length recommended. - The first hanger should be placed immediately adjacent to the first 90-degree elbow from the vertical rise connected to the water heater. The installation of a new water heater requires careful attention to the venting system. If replacing an existing power-vented water heater, inspect the old system before proceeding with the installation. Verify that it is composed of the correct materials and meets the specified vent length and terminal locations. Inspect the entire venting system for signs of damage or misalignment, especially at joints between elbows and straight sections of pipe. Check if any components are causing stress on the joints. If any issues are found, they must be corrected in accordance with the venting instructions before completing the installation and putting the water heater into service. It is crucial to connect the vent piping to the blower assembly using a rubber coupling and supplied clamps. Perform a leak test at the blower assembly connections using soap and water solution during initial startup and address any leaks before operating the water heater. Failure to properly install the blower assembly and vent the water heater can result in unsafe operation, bodily injury, explosion, fire, or death. To avoid these risks, never operate the water heater unless it is properly vented and has an adequate air supply for proper operation. The vent pipe must overlap a minimum of ½” on each connection, and ensure that it engages fully into any pipe fitting until the adhesive has

cured. This unit is equipped with a Flammable Vapor Sensor, and power should not be applied until enough time has passed to allow vapors from primer and cement to dissipate. Additional installation information for The Commonwealth of Massachusetts can be found on the back page of this manual. NOTICE: This water heater unit can be vented using only specific materials for the pipes and fittings. The recommended pipe material is: * 2 inch: PVC (Schedule 40, ASTM D1785) or CPVC (Schedule 40, ASTM F441) * 3 inch: PVC (Schedule 40, ASTM D1785), CPVC (Schedule 40, ASTM F441), or ABS (Schedule 40 DWV, ASTM D2661) Fittings should match the pipe material, except for the termination. Do not mix ABS with PVC or CPVC fittings. It is acceptable to interchange PVC and CPVC pipes. NOTICE: This water heater can be installed in attics provided ambient temperatures do not exceed 125°F (52°C) and CPVC or ABS pipe and fittings are used for the entire vent system. Vent pipe materials must match the ambient temperature and location within the vent system. Refer to the chart below: Ambient Installation Temperatures and Vent System Material Specifications * Below 100°F (38°C): PVC, CPVC, or ABS * 100°F (38°C) to 125°F (52°C): + For short vent runs (0-10 ft/0-3 m), use CPVC or ABS + For longer vent runs (10 ft + /3 m + ), use PVC, CPVC, or ABS Don't restrict the circular drain tube, ensure the loop is smooth and doesn't collapse it. Fill the tube with water to prevent combustion gases from venting into the room. Condensation collected must be discharged according to local codes. Avoid draining condensate over public ways or walkways. Refer to local codes for any condensate requirements. For vertical venting systems requiring condensation handling, use the blower coupling drain port and tube as described previously. For horizontal portions of the vent pipe, ensure a minimum slope of 1/8 inch per foot towards the water heater to prevent creating a water trap. Refer to Figures 4 & 5 for examples of vertical installations with condensation removal tubes and traps. A vent riser is necessary when the vent termination cannot be located above grade or snow lines. Power-vented water heaters installed with a vent riser should have a slope towards the water heater if the venting is long and passes through unconditioned spaces. It's recommended to define the condensate collection and disposal method previously described. Figure 6 illustrates a condition where a vent riser is necessary to meet minimum clearance. Note that the vent pipe must slope back to the water heater to prevent creating a water trap at the outside 90-degree elbow. Make sure the drain port cap is securely in place, as some models are not supplied with a drainable coupling. If condensation is required, contact the service department listed on the back of this manual. Some other notes: * Mixing 2" and 3" vent pipe is not recommended. * A 2" to 3" reducer fitting is necessary at the rubber coupling if using 3" pipe. * This water heater comes with a two-inch Schedule 40 PVC 45-degree vent terminal. When venting with 3" pipe, use a Schedule 40 PVC 45-degree vent terminal and include screens for both 2" and 3" vent terminals. Maximum Vent Pipe Length in Feet (ft): * For residential power vents up to 2,000 feet, the maximum length is 95'. * For lengths over 2,001 feet, refer to the table below: | Number of 90° Elbows | Number of 45° Elbows | Maximum Vent Pipe Length | | --- | --- | --- | | One (1) | None | 92.5' | | One (1) | One (1) | 87.5' | | Two (2) | None | 90' | | Two (2) | One (1) | 82.5' | | Three (3) | None | 85' | | Three (3) | One (1) | 77.5' | | Four (4) | None | 80' | | Four (4) | One (1) | 72.5' | | Five (5) | None | 75' | For 3" vents, one 90° elbow is roughly equivalent to 5 feet of vent pipe. One 45° elbow equals about 2.5 feet. The minimum required vent length for 3” vent pipes includes one foot of vertical pipe, one 90° elbow, and four feet of horizontal pipe. Maximum venting specifications for 3" vents are as follows: - For the first 2,000 feet: Maximum vent pipe length is 44 feet with no elbows or 24 feet with one elbow. - For distances above 2,000 feet: The maximum vent pipe length is 41 feet with one elbow and 21 feet with two elbows. Similarly, for 2” vents: - One 90° elbow is approximately equal to 6 feet of vent pipe. One 45° elbow is roughly equivalent to 3 feet. - The minimum required vent length includes one foot of vertical pipe, one 90° elbow, and three feet of horizontal pipe. - Maximum venting specifications for 2" vents are as follows: - For the first 2,000 feet: Maximum vent pipe length is 38 feet with no elbows or 18 feet with one elbow. - For distances above 2,000 feet: The maximum vent pipe length is 35 feet with one elbow and 15 feet with two elbows. For water heater installations requiring less than one foot of vertical pipe before the first elbow, subtract six feet from the maximum vent length. Vent Terminal Clearances To ensure proper installation, consider the following minimum clearances and guidelines: * At least 12 inches above the roof * At least 12 inches above anticipated snow level * Maximum 24 inches above the roof without additional support * 4 feet from gable, dormer, or other roof structures with interior access (vents, windows, etc.) * 10 feet from forced air inlets to the building, including fresh and make-up air inlets like dryers or furnace areas Additionally, ensure all pipe, fittings, cement, primers, and procedures conform to ANSI/ASTM standards. Horizontal Vent Installation 1. Determine the vent terminal location based on the clearances above. 2. Make a hole through the exterior wall for the vent pipe. 3. Insert a small length of vent pipe through the wall and connect it to the coupling as shown. 4. Place the 1/2" mesh metal screen inside the terminal fitting and connect it to the vent pipe outside the building. Complete the rest of the vent pipe installation up to the water heater's vent connector fitting on the blower outlet, ensuring any horizontal run is properly supported if necessary. Additional Considerations * Do not install vent terminals under patios or decks. * Avoid locating vent terminals on sides with prevailing winter winds to prevent moisture from freezing on walls and under eaves. * When terminating through brick or masonry surfaces, use a rust-resistant sheet metal backing plate behind the vent termination (see illustration). * Keep vent terminals at least 6 feet away from shrubbery, as flue gases may damage them. * Caulk all cracks, seams, and joints within 6 feet of the vent terminal. To prevent physical damage, painted surfaces should be maintained regularly. When insulating vent pipes exposed to cold conditions, use inflammable materials to stop moisture from accumulating inside the pipe. Never extend vent pipes outside the building. If alternative vent terminal configurations are needed, refer to the "If You Need Service" section. To avoid soffit vents being too close, block them off and install new ones at a different location. In areas with rising moisture under eaves, create a 6-foot caulk zone or extend it to the edge of windows. A 2x2 foot sheet metal plate on brick or masonry surfaces is recommended for added protection. However, be aware that flue gas moisture will condense as it leaves the vent terminal, potentially freezing and causing damage in cold weather. To install vertical vents properly: 1. Determine the best location for the vent terminal and make a hole through the roof and interior ceiling to accommodate the vent pipe. 2. Complete the vent pipe installation up to the water heater's vent connector fitting on the blower outlet. 3. Support vertical or horizontal lengths of the vent pipe as necessary. 4. Install flashing around the vent pipe where it passes through the roof. 5. Cut the vent pipe to the correct height, then connect a vent elbow onto the vertical pipe through the roof. 6. Attach a short piece of vent pipe (about 3 inches long) to the elbow and insert a 1/2-inch mesh metal screen into the terminal elbow before connecting it to the short piece of vent pipe. For sealing joints in vent piping, use recommended materials: - For PVC, use ASTM D2564 grade cement. - For CPVC, use ASTM F493 grade cement. - For ABS, use ASTM D2235 grade cement. When using cleaner-primer and medium body solvent cement: 1. Cut the pipe end square to remove jagged edges and burrs. 2. Chamfer the end of the pipe, then clean the fitting socket and pipe joint area of dirt, grease, or moisture. 3. Apply a liberal coat of primer inside the socket and outside the pipe before allowing it to dry. 4. Apply a thin layer of cement evenly into the socket, followed by a heavy coating on the pipe end before inserting it. Cementing Joints: Follow these steps for proper installation: 1. Twist the pipe fitting until it bottoms out; if not fluid, reapply cement. 2. Hold the fitting for 30 seconds to prevent the socket from pushing the pipe out. 3. Wipe excess cement with a rag and allow 15 minutes before handling. Cement Safety: * Stir solvent cement frequently while using. * Use a natural bristle brush or dauber supplied with the can. * Avoid skin, eye contact, and keep away from heat sources or open flames. * Ensure adequate ventilation when working with flammable materials. * Follow cautions and warnings on material containers. Important Installation Tips: * Do not use curdled, lumpy, or thickened solvent cement. * Do not thin solvent cement. * Observe shelf precautions for storage. * Use low temperature type solvent cement for applications below 32°F. * Ensure proper installation by following ANSI/ASTM standards and using appropriate solvent and cleaner. Wiring and Controls: * Label all wires prior to disconnection when servicing controls. * Verify proper operation after servicing to avoid improper or dangerous operation. * Follow the wiring diagram provided, ensuring correct connections for the pressure switch, temperature switch, and spark switch. Installing the Water Heater: * Connect the water heater to electric service using the power cord provided (DO NOT use an extension cord). * A grounding receptacle is required if local codes permit cord connections. * Alternatively, connect a 120 V, 50/60 Hz power supply with suitable disconnecting means to the black and white leads in the heater control enclosure. This water heater requires electrical grounding in accordance with local codes or National Electric Code ANSI/NFPA No. 70. The maximum current draw is approximately 5.0 amps. Please refer to the figures below for internal wiring. NOTICE: It's not recommended to install this unit on a GFCI circuit. To enhance energy efficiency, you may receive two 24” sections of pipe insulation. Install it according to the illustrations above, following your specific requirements. Hot and Cold Pipe Insulation Installation Insulation Blankets You don't need external insulation blankets for gas water heaters as they're designed to reduce standby heat loss. This water heater meets or exceeds National Appliance Energy Conservation Act standards, making an insulation blanket unnecessary. However, if local codes require an external insulation blanket, follow these precautions: DO NOT cover operating or warning labels, relocate them, or apply insulation to the top, burner access door, jacket door, gas control/valve, or pressure and temperature relief valve. Also, avoid applying insulation to the bottom or areas where combustion air inlet openings and Flammable Vapor Sensor are located, as this can restrict air flow. The manufacturer's warranty does not cover damage caused by unauthorized energy-saving devices or other unapproved attachments. Using such devices may shorten the water heater's life, endanger life and property. The manufacturer disclaims responsibility for any loss or injury resulting from their use. Vapor sensor placement near lower water heater perimeter may lead to unsafe operating conditions. Be cautious when applying insulation blanket kits and follow manufacturer instructions. Insulation thickness should not exceed ½” to avoid interfering with Blower Assembly Dilution Air Holes. To enhance energy efficiency, a 2 3/8” section of T&P insulation is provided for installation as shown in the diagrams. Ensure proper alignment and no obstruction of the T&P Valve opening. For user display-equipped water heaters only: IMPORTANT NOTICE - this electronic display cannot be added to non-factory-supplied models. Components include an optional Water Heater Mounting Bracket, Thermostat Wire, Mounting Tape, Transformer Enclosure, screw, and User Display. CAUTION: Turn off power to the water heater before proceeding with installation! 1. Locate the electrical connection on top of the water heater featuring a white 6-pin plug and heat shrink. 2. Attach the top pan harness connector to the Transformer Enclosure's 6-pin connection in the correct orientation. 3. Secure the Transformer Enclosure to the top pan using screws provided, without pinching any wires. DO NOT over tighten to avoid cracking the plastic enclosure. 4. Determine the User Display location and attach it to the water heater as desired. 5. Mount the display to the Water Heater, ensuring it's within 12 feet of the water heater for a direct connection. Any installation beyond this distance will require extra thermostat wire (not provided). If you're mounting remotely, skip to step 19. 6. Cut enough thermostat wire from the provided 12-foot length to connect the display to the Transformer Enclosure on top of the Water Heater Mounting Bracket. 7. Remove ½" insulation from both ends of the 3-wire (GREEN, RED, WHITE) thermostat wire. Strip both ends to prevent damage. 8. Connect one end of the thermostat wire to the spring terminal strip on the Transformer Enclosure, ensuring GREEN – RED – WHITE order from left to right. 9. Remove two strips of Display Mounting Tape and attach them inside the Water Heater Mounting Bracket's flanges for secure display placement. 10. Pass the thermostat wire through the bracket's top flange opening to keep it organized. 11. Clean the water heater jacket, removing any dust or dirt to ensure proper tape adhesion. 12. Remove the backing from the Display Mounting Tape and carefully attach it above the Rheem logo on the water heater jacket, keeping the thermostat wire in place through the bracket's wire slot. 13. Attach the User Display to the plastic Water Heater Mounting Bracket. 14. Separate the wall plate from the display by removing the battery cover and pulling out the plate. Note: Battery backup is not available for this model. 15. Replace the battery cover. 16. Attach the display wall plate to the heater bracket using the provided #6 x ½" Type A screws, ensuring the wire passes through the display's opening. 17-25 - Refer to steps 26, then skip directly to it. The user display comes with two #6 x 1” Type A screws in the box to attach it to the surface and a wall plate. To connect the thermostat wire, follow these steps: Connect the GREEN wire to the top terminal for data communication, the RED wire to the middle terminal for power, and the WHITE wire to the bottom terminal for common. Next, attach the Thermostat Display to the wall plate, remembering to leave the peel-off screen protector on for the customer's reference. Now, connect the power to the water heater, turn it on, and let it heat up. Finally, check the thermostat display for proper display and function. The user display also features a large, clear backlit display that shows the water heater temperature setpoint control, relative available hot water, and service needed indicator. Additionally, it has a scald warning system that starts flashing when the adjusted setpoint exceeds the "Hot" setting and becomes solid after 30 seconds of flashing. To unlock the display, press and hold the UP and DOWN arrow buttons until the lock icon flashes and disappears. The display will automatically relock if no button presses are detected within a 60-second period. When setting the temperature, note that the display will show a "Risk of Scalding Caution" if it's set above "HOT". Once you've chosen your desired setpoint, press the "Done" button to lock the display and prevent accidental adjustments. The user display setpoint can't exceed the maximum water heater valve setpoint at any time; if you try to set it higher, a "Max Setting" icon will appear. If the gas valve knob is set to "HOT", the user display shows "Hot" as the max available setpoint. If it's set to "VERY HOT", the user display shows "Very Hot", and you'll have the full range of temperature options. The three bars on the user display are an estimate of how much hot water is available, based on the temperature setpoint: two-thirds, one-third, or no hot water at all. If you switch to vacation mode, which sets the water heater temp to Low, the Estimated Hot Water symbol will show no hot water. If there's an error with the water heater, a "SERVICE NEEDED" icon will flash on the display; call your water heater contractor in this case. ❑ Make sure the inlet gas pressure is within the range stated on the rating plate. ❑ Ensure there's enough air for combustion and ventilation, following the Use and Care Manual and National Fuel Gas Code. ❑ Maintain proper clearance from combustibles, as specified on the rating plate. ❑ Allow time for joint cement vapors to dissipate before powering up the water heater. ❑ Verify that the venting system complies with guidelines in the Use and Care Manual and National Fuel Gas Code. ❑ Contact a qualified service technician if the main burner won't stay lit. The burner chamber uses a gasket and tamper-resistant screws for sealing. **Important Pre-Installation Checks** 1. **Clear Area Around Heater**: Ensure materials, rags, etc., are clear of the base of the heater. 2. **Check Combustion Air Inlet Openings**: Verify there is a clearance of at least 1” from combustion air inlet openings. 3. **Flammable Vapor Sensor**: Make sure it's not blocked to prevent potential hazards. 4. **Water Heater Inspection**: - Ensure the water heater is completely filled with water. - Check that air has been purged from the water heater and piping. - Verify water connections are tight and free of leaks. 5. **Gas Line Safety**: - The gas line must be equipped with a shut-off valve, union, and sediment trap. - Ensure the required inlet gas pressure to the water heater is indicated on the rating plate. - Use a soap and water solution to check all connections for possible gas leaks. - If required, have the Gas Company inspect the installation. 6. **Temperature and Pressure Relief Valve**: - Ensure it's properly installed with its discharge line running to an open drain. - Protect the discharge line from freezing. - Vented separately from all other appliances. 7. **Flue Baffle Installation**: - Hang the flue baffle correctly in the top of the heater’s flue. - Ensure proper materials and techniques were used in vent assembly. - Verify the vent pipe is properly secured to the blower housing and supported at required intervals. 8. **Appropriate Minimum Clearances Observed**: - Precautions taken to prevent moisture damage around the vent termination. - Vapors from vent pipe cement and primer have dissipated prior to applying electrical power. 9. **Wiring**: - Correct power supply (120 V) is used. - Ensure all electrical connections are tight, and the heater is properly grounded with the right polarity observed. 10. **Tee Fitting Installation**: - Use a tee fitting for both vertical and horizontal hot water supply lines as indicated in local codes or plumbing authority requirements may vary from instructions provided in this manual and take precedence over these instructions. - A mixing valve complying with ASSE 1017 must be installed in the hot water supply line to reduce scald hazard potential. Notice: This water heater is suitable for combination use with drinking water, potable heating, and space heating. However, it's not intended for space heating only. Danger: If you're installing this heater to supply domestic hot water needs and space heating purposes, don't connect it to existing heating units or components previously used for non-drinking water systems. Toxic chemicals may contaminate the drinking water supply, posing health risks. Never introduce such chemicals into this system. For Massachusetts State, the maximum distance from the water heater to fan coil is 50' - 0" developed length. A typical piping diagram is provided for combination potable/space heating installation. Spring-loaded check valves are required in hot and cold water lines. Insulate all water pipes according to local and state energy codes. Isolation valves are needed in the cold water return line from the heating unit and the hot water supply line. Install a mixing or tempering valve with the manufacturer's instructions. A temperature and pressure relief valve discharge line is also required. Drain valves, air handlers, and temperature gauges should be installed as per the diagrams above. Combustion air inlet openings and thermal expansion tanks may be needed depending on the location. Local and State Energy Code Requirements: Ensure compliance with local and state energy codes for gas-fired water heaters, including direct vent discharge. Installation must adhere to local codes and manufacturer guidelines (120°F to 130°F) for gas control. Before Operating: Read instructions on labels, manuals, and warning signs. Failure to do so can result in property damage, personal injury, or death. If unsure, seek help from a qualified person. Operating Instructions: 1. Turn off gas supply. 2. Check the manual for any issues reading or following instructions; if needed, STOP and consult a qualified person. 3. Do not use the appliance if it has been submerged in water; immediately contact a qualified installer or service agency to replace the unit. 4. Use only your hand to turn the gas control knob; do not attempt to repair if difficult. 5. If you smell gas, stop immediately and follow safety instructions on the label (B). Call your gas supplier from a neighbor's phone and follow their guidance. 6. Do not try to light any appliance by hand or touch electric switches; use a neighbor's phone if necessary. Safety Information: 1. Before using this appliance, ensure you have read the manual and understand the safety precautions. 2. In case of a leak or smell gas, stop immediately and follow steps B (label instructions) and call your gas supplier from a neighbor's phone. 3. Do not touch any electric switch; use a neighbor's phone if necessary. 4. Keep flammable materials away from the appliance. 5. Do not try to repair or replace parts; consult a qualified technician for assistance. If you need to service your appliance, ensure it's turned off by following the "Turn Off Gas to Appliance" guidelines and contacting a professional from your gas supplier or a certified technician. Before any maintenance, switch off all electrical power supply to the device. Additionally, manually close the gas shut-off valve. Please note that failure to adhere strictly to these steps may lead to severe consequences such as fires, explosions, property damage, serious personal injury, or even loss of life.